

WHAT IS CLAIMED IS:

1. A driving apparatus comprising:

a rotatable rotor with a ring shape, said rotor having magnet portions which are divided along a
5 circumferential direction and differently magnetized;

a first magnetic pole portion, said first magnetic pole portion being formed extending in a direction perpendicular to a rotational axis of said rotor, and facing a face of said magnet portion
10 perpendicular to the rotational axis;

a second magnetic pole portion, said second magnetic pole portion sandwiching said magnet portion between said second magnetic pole portion and said first magnetic pole portion, and facing another face
15 of said magnet portion perpendicular to the rotational axis; and

a coil for magnetically exciting said first magnetic pole portion and said second magnetic pole portion, said coil being disposed radially of said
20 rotor;

wherein a condition of $-0.333X+0.7>Y$ is satisfied where Y is a ratio of a central angle of each first magnetic pole portion relative to a central angle of each magnetized pole in said magnet
25 portion, and X is a ratio of an outer circumferential length of each magnetized pole in said magnet portion relative to a thickness of said magnet portion in a

direction of the rotational axis.

2. A driving apparatus according to claim 1,
further comprising a regulating member, said
5 regulating member regulating a rotational range of
said rotor such that this rotational range includes
regions in which directions of attractive force due
to magnetic force acting between said magnet portion
and said first magnetic pole portion are opposite to
10 each other, but does not include a region in which a
center of said magnetized pole in said magnet portion
faces a center of said first magnetic pole portion.

3. A driving apparatus according to claim 1,
15 wherein said rotor can be maintained in two
predetermined rotational positions, and when the
position in which said rotor is maintained is to be
switched, current supply to said coil is stopped
after said rotor is rotated, by current supply to
20 said coil, to a region in which the direction of
attractive force due to magnetic force becomes
opposite.

4. A light-amount regulating apparatus
25 comprising:

a rotatable rotor with a ring shape, said rotor
having magnet portions which are divided along a

circumferential direction and differently magnetized;

an output member, said output member being actuated according to rotation of said rotor;

a first magnetic pole portion, said first
5 magnetic pole portion being formed extending in a direction perpendicular to a rotational axis of said rotor, and facing a face of said magnet portion perpendicular to the rotational axis;

a second magnetic pole portion, said second
10 magnetic pole portion sandwiching said magnet portion between said second magnetic pole portion and said first magnetic pole portion, and facing another face of said magnet portion perpendicular to the rotational axis;

15 a coil for magnetically exciting said first magnetic pole portion and said second magnetic pole portion, said coil being disposed radially of said rotor;

a plate having an aperture portion; and

20 a light-amount regulating member for changing the amount of light passing through said aperture portion, said light-amount regulating member being driven by said output member, and moved on said aperture portion of said plate;

25 wherein a condition of $-0.333X+0.7>Y$ is satisfied where Y is a ratio of a central angle of each first magnetic pole portion relative to a

central angle of each magnetized pole in said magnet portion, and X is a ratio of an outer circumferential length of each magnetized pole in said magnet portion relative to a thickness of said magnet portion in a
5 direction of the rotational axis.

5. A light-amount regulating apparatus according to claim 4, further comprising a regulating member, said regulating member regulating a
10 rotational range of said rotor such that this rotational range includes regions in which directions of attractive force due to magnetic force acting between said magnet portion and said first magnetic pole portion are opposite to each other, but does not
15 include a region in which a center of said magnetized pole in said magnet portion faces a center of said first magnetic pole portion.

6. A light-amount regulating apparatus
20 according to claim 4, wherein said rotor can be maintained in two predetermined rotational positions, and when the position in which said rotor is maintained is to be switched, current supply to said coil is stopped after said rotor is rotated, by
25 current supply to said coil, to a region in which the direction of attractive force due to magnetic force becomes opposite.

7. A lens driving apparatus comprising:

a rotatable rotor with a ring shape, said rotor having magnet portions which are divided along a circumferential direction and differently magnetized;

5 a first magnetic pole portion, said first magnetic pole portion being formed extending in a direction perpendicular to a rotational axis of said rotor, and facing a face of said magnet portion perpendicular to the rotational axis;

10 a second magnetic pole portion, said second magnetic pole portion sandwiching said magnet portion between said second magnetic pole portion and said first magnetic pole portion, and facing another face of said magnet portion perpendicular to the
15 rotational axis;

a coil for magnetically exciting said first magnetic pole portion and said second magnetic pole portion, said coil being disposed radially of said rotor;

20 a lens, a light beam passing said lens passing through a central portion of said rotor; and

a lens holding member for holding said lens, said lens holding member being moved in a direction of an optical axis of said lens according to rotation
25 of said rotor;

wherein a condition of $-0.333X+0.7>Y$ is satisfied where Y is a ratio of a central angle of

each first magnetic pole portion relative to a central angle of each magnetized pole in said magnet portion, and X is a ratio of an outer circumferential length of each magnetized pole in said magnet portion
5 relative to a thickness of said magnet portion in a direction of the rotational axis.

8. A lens driving apparatus according to claim 7, further comprising a regulating member, said
10 regulating member regulating a rotational range of said rotor such that this rotational range includes a region in which directions of attractive force due to magnetic force acting between said magnet portion and said first magnetic pole portion are opposite to each
15 other, but does not include a region in which a center of said magnetized pole in said magnet portion faces a center of said first magnetic pole portion.

9. A lens driving apparatus according to claim
20 7, wherein said rotor can be maintained in two predetermined rotational positions, and when the position in which said rotor is maintained is to be switched, current supply to said coil is stopped after said rotor is rotated, by current supply to
25 said coil, to a region in which the direction of attractive force due to magnetic force becomes opposite.